LUNAR *NEWS*

No. 62 February 1998

In This Issue:

Sample Request Deadline - February 28, 1998

Lunar Prospector Update

see page 4

Upcoming LPSC

see page 7

Announcing a CAPTEM Lunar Initiative

see page 6

Lunar News Mission

The purpose of "Lunar News" is to provide a newsletter forum for facts and opinions about lunar sample studies, lunar geoscience, and the significance of the Moon in solar system exploration.

Editor's Notes

"Lunar News" is published by the Planetary Missions and Materials Branch, Earth Science & Solar System Exploration Division, Johnson Space Center of the National Aeronautics and Space Administration. It is sent free to all interested individuals. To be included on the mailing list, write to the address below. Please send to the same address any comments on "Lunar News" or suggestions for new articles.

Planetary Missions and Materials Branch

Phone Numbers

Lunar News Editor
Andrea Mosie .... (281) 483-5769
Newsletter Design and Production
Anita Dodson .... (281) 483-5768
Lunar Samples
Gary Lofgren .... (281) 483-6187
Messages and General Information
Tari Mitchell .... (281) 483-5033
Antarctic Meteorites
Marilyn Lindstrom .... (281) 483-5135
Cosmic Dust and LDEF
Mike Zolensky .... (281) 483-5128
Loan Agreements and Records
Dale Browne .... (281) 483-5132
Technical Operations
Jim Townsend .... (281) 483-5331
Contamination Control
Dave Lindstrom .... (281) 483-5012
Planetary Mission Science Payloads
Wendell Mendell .... (281) 483-5064
Chuck Meyer .... (281) 483-5133
Eileen Stansbery .... (281) 483-5540

Mailing Address: SN2 Lunar Sample Curator, NASA
Johnson Space Center, Houston, Texas 77058-3696 USA

Electronic Mail:
Internet: glofgren@ems.jsc.nasa.gov

FAX: 281-483-5347

Meet the Staff!

James A. Holder, son of Phyllis and Alfred Holder, was born in Portsmouth, New Hampshire. He has been married to Elizabeth Ann for 30 years and they have a son named James Christopher who is 29 years old.

Jimmy, as he is known, started his career at Johnson Space Center in the Lunar Receiving Laboratory in Building 37 in February of 1967. He worked as a Plastics technician, and a Machinist technician until transferring to the Sample Storage and Preparation Laboratory (SSPL) in Building 31 in the early 70's. He helped to set up and clean cabinets as well as run tubing for the nitrogen cabinets in construction of the Lunar Processing Laboratory. Later, Jimmy worked as a Lunar Sample Processor where he provided sample research, geologic observation and examinations, bandsawing, sample identifications and photo-documentation. He was reassigned from this position to the Thin Section Laboratory (TSL) in 1974 as a technician.

Jimmy produces top quality thin sections of lunar, meteorite and terrestrial samples for Principle Investigators and scientists all over the world. He also teaches thin section production. Writing procedures is

continued on page 7

Curator's Comments

Gary Lofgren
NASA JSC

Just before Christmas I agreed to take on the task of Lunar Sample Curator. My association with lunar samples goes back to when, as fledgling scientist caught up in the excitement the Apollo 11 rocks, I was asked to prepare the samples for allocation that required special cutting. Curtis Bauman, working with Jerry Wasserburg had designed and built a wire saw that would cut samples dry with minimal contamination. I proceeded to do 3 weeks of sawing for the initial round of Apollo 11 allocations. That saw, by the way, is still in use and a few others have been built. I then spent many years studying the crystallization properties of lunar basalts and impact melts before I moved on to similar studies on meteoritic materials. My current research emphasis remains on meteorites, but I retain a keen interest in the lunar samples and I am pleased to be a part of their continued preservation and ongoing distribution for study.

My responsibilities are more limited than previous occupants of this position. My primary task will be to facilitate the allocation of lunar samples for scientific studies. I will work with CAPTEM to insure the samples continue to be used for well founded objectives and I will assist investigators in securing samples that fulfill their needs. I have inherited a great crew of devoted individuals who have participated in the process for many years and I know I can count on them to continue this process without interruption. I will team up with the present meteorite and cosmic dust curators and with the yet to be hired astromaterials and administrative curators to continue to provide NASA with first class extraterrestrial sample curation.

There continues to be a significant interest in lunar samples and investigators continue to make significant additions to our knowledge of the moon. Most recently, e.g., Alex Halliday's research group at Michigan used a newly developed short-lived hafnium-tungsten chronometer to further delve into the early history of the earth and the moon that will set off some interesting discussions. See their article in Science, Nov. 7, 1997 issue, vol. 278, 1098-1103.

We are entering a new, exciting era. We are returning to the moon for a new round of data gathering. I anticipate that the Prospector mission will generate a renewed interest in the sample collection. Brad Jolliff (see article in this newsletter), outlines a CAPTEM initiative that will focus on producing a much better correlation between lunar surface materials and the remotely collected data from the current Prospector mission and the recent Clementine mission.

Feel free to contact me at any time by email, letter, whatever!

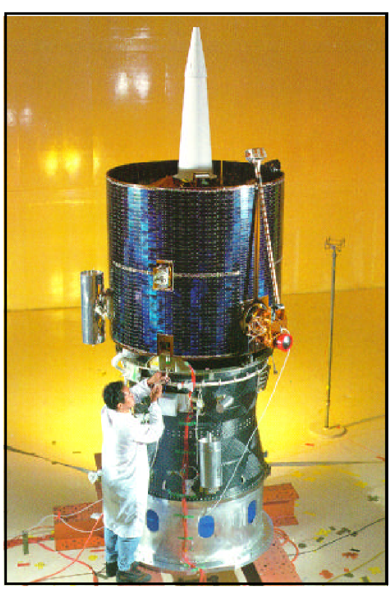
Prospector Orbits the Moon

by John E. Gruener
Hernandez Engineering

It took 25 years, but NASA is back in the business of sending spacecraft to the Moon. Lunar Prospector is now in lunar orbit and sending back long sought after scientific data every 32 seconds (except, of course, when the spacecraft is occulted by the Moon). Below is a brief summary of Prospector's first month of operations.

Lunar Prospector was launched on January 6 atop a Lockheed Martin Athena II rocket at 9:28:44 p.m. EST (an attempt to launch the previous night was canceled due to a range safety tracking radar failure). This was the first launch from pad 46 of Spaceport Florida's new commercial launch complex. All four stages of the Athena II performed as planned and after about 15 minutes of powered flight placed Prospector and its trans lunar injection (TLI) stage, a Thiokol Star 37 rocket motor, into a 'parking orbit' around Earth at an altitude of 200 km. As they passed over Australia about 55 minutes after launch, Prospector was spun up to 60 rpm and the Star 37 was ignited. The TLI stage burned for 64 seconds, successfully propelling Prospector out of earth orbit and on it's planned 105 hour trajectory towards the Moon.

Below: *The Lunar Prospector, the first spacecraft NASA has sent to the Moon since Apollo is being assembled.*



Though delayed by a minor communications problem with getting Prospector's telemetry signal to mission control at Ames Research Center, the science instruments were all turned on and the three 2.5 m booms were all fully extended. This resulted in Prospector's spin rate decreasing to about 12 rpm, its final operational spin rate. The electron reflectometer, neutron spectrometer, and gamma ray spectrometer were all allowed to 'degas' before being commanded to high voltage. All of the science instruments, including the alpha particle spectrometer and magnetometer, were successfully calibrated enroute to the Moon.

Three trajectory correction maneuvers were initially planned for Prospector's trip to the Moon, but the accuracy of the first two made the third unnecessary. On January 11, at 6:45 a.m. EST, the first , and most critical, lunar orbit insertion (LOI) burn began when Prospector was only 71 km above the lunar surface. It lasted about 32 minutes and resulted in an elliptical orbit of roughly 70 km by 8,500 km. The inclination of the orbit was about 89.7° and the period was about 11.6 hours, very close to the targeted 12 hour orbit. The second LOI burn occurred on January 12 and lasted 27 minutes. The resulting elliptical orbit was about 80 km by 1870 km, and the orbital period was reduced to 3.5 hours, as planned. The third LOI burn occurred on January 13 and also lasted about 27 minutes. This resulted in an orbit close to circular, with dimensions being roughly 90 km by 150 km and with an orbital period of 2 hours. Finally, on January 15, two orbit trim maneuvers were performed, resulting in a 99 km by 100 km orbit with an inclination of 90° and a period of 118 minutes, Prospector's planned mapping orbit.

Lunar gravity, of course, will continually affect Prospector's orbit, and rarely will it be in a 'perfect' circular orbit. As Prospector's orbit degrades, orbital adjustment maneuvers will periodically be made to get the spacecraft back near the nominal 100 km orbit. Since one of the primary science objectives is to provide more information about the lunar gravity field and improve the current gravity models, the time intervals between the orbit adjustments are not set and will be determined as the mission evolves.

The science instruments are in excellent health, continue to perform superbly, and are sending data back that will help accomplish the other primary science objectives. The three spectrometers will measure the elemental chemistry of the lunar surface, record any out-gassing episodes emanating from the lunar surface, and possibly detect water ice in permanently shadowed areas at the polar regions of the Moon. And though the Moon lacks a global magnetic field, the magnetometer/electron reflectometer will map the distribution of the many small magnetic fields on and around the Moon. This magnetic data, along with the gravity data, will also help answer questions about the size and characteristics of the lunar core. Prospector has no onboard computer,and science data is sent to earth as it is collected. When Prospector is occulted by the Moon, the command and data handling system has enough memory to store up to 53 minutes of data. This delayed data stream is then sent with the real time data stream once Prospector is back in communications with earth.

All in all, the Lunar Prospector mission has begun without a 'hitch' and it looks like we're in store for a successful year of lunar data collection. The mission can be followed from the Lunar Prospector website at Ames Research Center (http://lunarprospector.arc.nasa.gov). The people at Ames have done a great job on the data visualization section of the website. Prospector's location and position are updated real time using images from the Clementine mission, and raw science data can be seen every 32 seconds as it comes in from the Moon. Dr. Alan Binder, Prospector's Principal Investigator, should be congratulated on his perseverance during the past 10 years, guiding Prospector through it's various 'lives' and finally getting NASA back to the Moon.

You can follow the Lunar Prospector mission at:

http://lunarprospector.arc.nasa.gov

Astromaterials at JSC

by Doug Blanchard
NASA JSC

The JSC curatorial facility is preparing to receive new solar system samples. We are working with Discovery Missions, Genesis and Stardust, on solar wind and comet dust collectors that will be returned to Earth. And, of course, we are getting serious about the preparations for the return of Mars samples. We rearranged the division to strengthen these initiatives. We created a small Office of the Curator to spearhead our curatorial preparations and activities. The collection Curators are now Planetary Science Branch members who take responsibility for one of the collections. This gives the Astromaterials (A-M) Curator important visibility at JSC, it frees the A-M Curator to be an active advocate for sample return missions and to continue to be a research scientist, and it makes all of the resources of the division available as needed to accomplish the expanding curatorial role. We are engaged in a worldwide search and hope to name the new A-M Curator by summer.

Announcing a CAPTEM Lunar Initiative:

New Views of the Moon Enabled by Combined Remotely Sensed and Lunar Sample Data Sets

By Bradley L. Jolliff
Washington University, St. Louis

As preliminary results of the Lunar Prospector mission become available, and with the important results of the Galileo and Clementine missions now providing new global data sets of the Moon, it is imperative that we begin to synthesize these new data and integrate them with one another and with the lunar-sample data base. Toward this end, CAPTEM (Curation and Analysis Planning Team for Extraterrestrial Materials) has begun organizing a scientific initiative entitled ***"New Views of the Moon Enabled by Combined Remotely Sensed and Lunar Sample Data Sets."***

In 1990 and 1992, the Galileo spacecraft encountered the Earth-Moon system and gave us new and astounding multispectral views of the Moon, which added significantly to the immense body of knowledge gained from Apollo-era studies and Earth-based telescopic studies (e.g., Pieters et al., 1993). Then, in 1994, the Clementine mission provided the first global or near-global data sets for lunar gravity, topography, and multispectral imaging. Early science results from the Clementine data have been nothing less than spectacular (summarized in McEwen and Robinson, 1997). These data sets will undoubtedly continue to provide a wealth of information for many years to come.

Numerous research groups have already begun to capitalize on the Clementine data sets and to integrate the new data with results from studies of rocks and soils collected during the Apollo missions, from studies of the geology of the landing sites, and from studies of the results of Apollo geophysical experiments. Even those of us who, to this point, have been primarily focused on the lunar samples, are beginning to recognize the importance and utility of the remotely-sensed data sets and the need to couple our understanding of the lunar samples with the wealth of information contained in the new data sets. Extending our understanding of lunar geology and resources from the landing-site scale to a truly global scale will provide the foundation for new paradigms of the Moon's geologic evolution as well as a foundation for studies that pave the way to future resource utilization, on-surface experiments, and manned lunar-outpost missions.

A number of recent and ongoing efforts attempt to understand the remotely-sensed data in terms of lunar soil characteristics based both on laboratory studies (e.g., Fischer and Pieters, 1996, Taylor et al., 1997) and on calibration with soils and geology of the lunar landing sites (e.g., Blewett et al., 1997). Work of this kind is crucial to furthering our ability to extract the full measure of information from the new data sets. The purpose of this CAPTEM initiative is to facilitate interactions and intellectual cooperation between the lunar remote-sensing, geophysical, and sample communities, which will potentially lead to fundamentally new views of the Moon's internal structure, surface geology, mare volcanism, and crustal and regolith evolution through time.

We will kick off the initiative at the 29th Lunar and Planetary Science Conference with a special topical session entitled "Probing the Moon with Remote Sensing and Samples: A New Integration." This is but the first of a number of topical or theme sessions that we plan to organize both for future LPSC's and at other national meetings. We also plan to organize workshops where participants will discuss the new and existing data sets and how to use them, and will present new, integrated approaches to long-standing problems of lunar science and applications of multiple data sets to new problems. One of our long-term goals is to produce a volume similar to "Basaltic Volcanism on the Terrestrial Planets" (in quality, if not in vastness) toward the end of this initiative.

In the coming months, there will be many opportunities for the lunar geoscience community to participate in this exciting new initiative. We have organized a steering committee, consisting of individuals with expertise including lunar geology, remote sensing, geophysics, mineralogy, petrology, and geochemistry; and representing the breadth of current and coming data sets. We plan to establish a web site soon, so be on the lookout for additional information. In the meantime, your comments and suggestions are welcome; please send them to Brad Jolliff at blj@levee.wustl.edu.

References cited:

Pieters C., et al. (1993) Crustal diversity of the Moon: Compositional analyses of Galileo solid state imaging data. *J. Geophys. Res.* **98**, 17,127–17,148.

McEwen A. S. and Robinson M. S. (1997) Mapping of the Moon by Clementine. *Adv. Space Res.* **19**, 1523–1533.

Fischer E. M. and Pieters C. M. (1996) Composition and exposure age of the Apollo 16 Cayley and Descartes regions from Clementine data: Normalizing the optical effects of space weathering. *J. Geophys. Res.* **101**, 2225–2234.

Taylor L. A., et al. (1997) Spectral reflectance versus abundances of minerals and glasses in the 10 to 45 micron size fraction of mare soil 12030. *LPSC XXVIII*, 1421–1422.

Blewett D. T., et al. (1997) Clementine images of the lunar sample-return stations: Refinement of FeO and TiO_2 mapping techniques. *J. Geophys. Res.* **102**, 16,319–16325.

Lunar Interest High at the 29th Lunar and Planetary Science Conference

March 16-20, 1998
Houston, Texas

Five half day sessions including "Lunar Mare Volcanism," "Lunar Highlands Crust," "The Lunar Regolith: Processes and Materials," "Origin of the Earth and Moon," and a session inspired by a CAPTEM initiative (see article by Brad Jolliff in this issue) "Probing the Moon with Remote Sensing and Samples: A New Integration," are scheduled in the first 3 days of the conference. For more information on the conference look up:

cass.jsc.nasa.gov/meetings/LPSC98/

Meet the Staff
continued from page 2

just another laboratory task which he assumes. Under Jimmy's direction, the TSL has continued to uphold its reputation of producing the best thin sections in the world.

Jimmy is not only devoted to his family, but he spends time helping a former coworker in a Convalescent Home. In his quiet time, Jimmy enjoys fishing and golf—lots of golf!

Our thanks to Jimmy for his many years of hard work, support and dedication to the cause of Lunar Sample Curation.

How to Request Lunar Samples

NASA policies define lunar samples as a limited national resource and future heritage and require that samples be released only for approved applications in research, education, and public display. To meet that responsibility, NASA carefully screens all sample requests with most of the review processes being focused at the Johnson Space Center (JSC). Individuals requesting a lunar sample should follow the steps given below for the appropriate category of sample.

1. RESEARCH SAMPLES (including thin sections)

NASA provides lunar rock, soil, and regolith-core samples for both destructive and non-destructive analysis in pursuit of new scientific knowledge. Requests are considered for both basic studies in planetary science and applied studies in lunar materials beneficiation and resource utilization.

A. The sample investigator demonstrates favorable scientific peer review of the proposed work involving lunar samples. The required peer review can be demonstrated in either of two ways: (1) A formal research proposal recommended by NASA's Lunar and Planetary Geosciences Review Panel (LPGRP) or an equivalent scientific peer-review panel, within the past three years; (2) Submittal of reprints of scientific articles, as published in peer-reviewed professional journals that directly pertain to the specific sample requested.

B. The investigator submits a written request specifying the numbers, types, and quantities of lunar samples needed as well as the planned use of the samples. For planetary science studies, the sample request should be submitted directly to the Lunar Sample Curator at the following address:

Dr. Gary Lofgren
SN2/Lunar Sample Curator
NASA/Johnson Space Center
Houston, TX 77058-3696
USA
Telephone: (281) 483-6187
Fax: (281) 483-5347

For engineering and resource-utilization studies, the sample request should be submitted to the Lunar Simulant Curator at the following address:

Dr. Douglas W. Ming
SN4/Lunar Simulant Curator
NASA/Johnson Space Center
Houston, TX 77058-3696
USA
Telephone: (281) 483-5839
Fax: (281) 483-5347

The Lunar Simulant Curator will assure that all necessary demonstration tests with simulated lunar materials have been satisfactorily completed. Requests determined to be sufficiently mature to warrant consideration for use of lunar materials will then be forwarded to the Lunar Sample Curator.

For new investigators, tangible evidence of favorable peer review (step A) should be attached to the sample request. Each new investigator should also submit a résumé.

Investigators proposing the application of new analytical methodologies (not previously applied to lunar samples) also should submit test data obtained for simulated lunar materials. New investigators who are not familiar with lunar materials should consult *Lunar Sourcebook: A User's Guide to the Moon* (G. Heiken, D. Vaniman, and B. M. French, Eds.; Cambridge University Press, 736 pp.; 1991; ISBN 0-521-33444-6) as the best available reference on the chemical and physical properties of lunar materials.

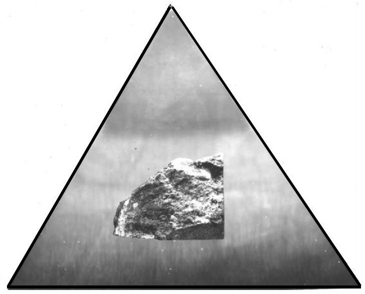
Investigators with access to the World Wide Web on the Internet also can find updated information at the following URL: http://www-sn.jsc.nasa.gov/curator/curator.htm. The home page cited above provides links to sample databases and other information of use to sample requestors.

C. The Lunar Sample Curator will research the availability of the requested samples and decide whether a unilateral action can be taken or an outside scientific review is required. Outside review is prescribed for all new investigators and for most established investigators except where returned (previously used) samples are being requested. For outside review, the Curator forwards the original request, with background information, to the Curation and Analysis Planning Team for Extraterrestrial Materials (CAPTEM), a standing committee of scientists who advise NASA on the care and use of lunar samples. CAPTEM checks for favorable peer review (step A) and appropriate sample selection (step B).

D. Given CAPTEM endorsement and concurrence by NASA Headquarters, the Lunar Sample Curator will prepare a Lunar Sample Loan Agreement for signature by the investigator's institution. The agreement includes a simple security plan that prescribes precautions to minimize prospects for theft or unauthorized use of lunar samples.

E. Upon receipt of the properly executed loan agreement, the Lunar Sample Curator prepares the authorized samples and sends them to the investigator. Quantities less than 10 grams can be sent directly by U. S. registered mail to domestic investigators. Shipments to foreign investigators are sent by U. S. diplomatic pouch mail to the American embassy nearest the requestor's location. Quantities larger than 10 grams must be hand-carried by the investigator or his/her representative.

F. Continuation as a Lunar Sample Investigator. An investigator's privilege for retention and use of lunar samples is contingent upon continued good standing with the Office of the Curator. The investigator will remain in good standing by fulfilling the following obligations: (1) Maintenance of, and adherence to, the lunar sample loan agreement and security plan; (2) Timely cooperation with annual lunar sample inventory; (3) Timely cooperation with sample recalls.



2. PUBLIC DISPLAY SAMPLES

NASA provides for a limited number of rock samples to be used for either short-term and long-term displays at museums, planetariums, expositions, or professional events that are open to the public. Requests for such display samples are administratively handled by the JSC Public Affairs Office (PAO). Requestors located in the United States should apply in writing to the following address:

Mr. Boyd E. Mounce
Lunar Sample Specialist
AP4/Public Services Branch
NASA/Johnson Space Center
Houston, TX 77058-3696
Telephone: (281) 483-8623
Fax: (281) 483-4876

Mr. Mounce will advise successful applicants regarding provisions for receipt, display, and return of the samples. All loans will be preceded by a signed loan agreement executed between NASA and the requestor's organization. Mr. Mounce will coordinate the preparation of new display samples with the Lunar Sample Curator.

3. EDUCATIONAL SAMPLES
(disks and educational thin sections)

A. Disks

Small samples of representative lunar rocks and soils, embedded in rugged acrylic disks suitable for classroom use, are made available for short-term loan to qualified school teachers. Each teacher must become a certified user of the disks through a brief training program prior to receiving a disk. Educational sample disks are distributed on a regional basis from NASA field centers located across the United States. For further details, prospective requestors should contact the nearest NASA facility as follows:

IF YOU LIVE IN:

Alaska	*Nevada*
Arizona	*Oregon*
California	*Utah*
Hawaii	*Washington*
Idaho	*Wyoming*
Montana	

NASA Teacher Resource Center
Mail Stop T12-A
NASA Ames Research Center
Moffett Field, CA 94035-1000
Phone: (415) 604-3574

IF YOU LIVE IN:

Connecticut	*New Hampshire*
Delaware	*New Jersey*
New York	*Maine*
Pennsylvania	*Maryland*
Rhode Island	*Massachusetts*
Vermont	
District of Columbia	

NASA Teacher Resource Laboratory
Mail Code 130.3
NASA Goddard Space Flight Center
Greenbelt, MD 20771-0001
Phone: (301) 286-8570

IF YOU LIVE IN:

Colorado	*North Dakota*
Kansas	*Oklahoma*
Nebraska	*South Dakota*
New Mexico	*Texas*

NASA Teacher Resource Room
Mail Code AP-4
NASA Johnson Space Center
Houston, TX 77058-3696
Phone: (281) 483-8696

IF YOU LIVE IN:
Florida
Georgia
Puerto Rico
Virgin Islands

NASA Educators Resource Laborarory
Mail Code ERL
NASA Kennedy Space Center
Kennedy Space Center, FL 32899-0001
Phone: (407) 867-4090

IF YOU LIVE IN:
Kentucky
North Carolina
South Carolina
Virginia
West Virginia

NASA Teacher Resource Center
for Langley Research Center
Virginia Air and Space Center
600 Settler's Landing Road
Hampton, VA 23669-4033
Phone: (804) 727-0900 x757

IF YOU LIVE IN:

llinois	*Minnesota*
Indiana	*Ohio*
Michigan	*Wisconsin*

NASA Teacher Resource Center
Mail Stop 8-1
NASA Lewis Research Center
21000 Brookpark Road
Cleveland, OH 44135-3191
Phone: (216) 433-2017

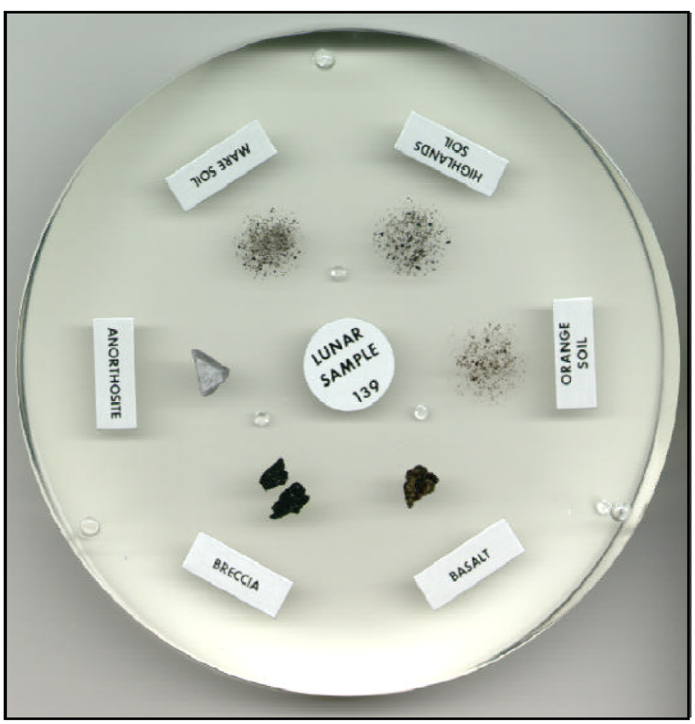
IF YOU LIVE IN:

Alabama	*Louisiana*
Arkansas	*Missouri*
Iowa	*Tennessee*

NASA Teacher Resource Center
for Marshall Space Flight Center
U.S. Space and Rocket Center
P.O. Box 070015
Huntsville, AL 35807-7015
Phone: (205) 544-5812

IF YOU LIVE IN:
Mississippi

NASA Teacher Resource Center
Building 1200
NASA John C. Stennis Space Center
Stennis Space Center, MS 39529-6000
Phone: (601) 688-3338



B. Thin Sections

NASA prepared thin sections of representative lunar rocks on rectangular 1 x 2-inch glass slides, with special safety frames, that are suitable for use in college and university courses in petrology and microscopic petrography for advanced geology students. Each set of 12 slides is accompanied by a sample disk (described above) and teaching materials. The typical loan period is two weeks, including round-trip shipping time. Each requestor must apply in writing, on college or university letterhead, to the following address:

SN2/Lunar Sample Curator
NASA/Johnson Space Center
Houston, TX 77058-3696
Telephone: (281) 483-6187
Fax: (281) 483-5347

For each approved user, the Curator will prepare a loan agreement to be executed between NASA and the requestor's institution prior to shipment of the thin-section package. ❑

Accessing the JSC SN2 Curatorial Databases

The curatorial databases may be accessed as follows:

Via INTERNET	1) Type **TELNET 139.169.126.35** or **TELNET CURATE.JSC.NASA.GOV**. 2) Type **PMPUBLIC** at the USERNAME: prompt.
Via WWW	1) Using a Web browser, such as Mosaic, open URL **http://www-curator.jsc.nasa.gov** 2) Activate the ***Curatorial Databases*** link.
Via modem	The modem may be between 1200 and 19200 baud; no parity; 8 data bits; and 1 stop bit. If you are calling long distance, the area code is 713. 1) Dial 483-2500 for 1200-9600 bps, V.32bis/V.42bis, or 483-9498 for 1200-19200 bps, V.32bis/V.42bis. 2) Once the connection is made, press <CR>. Type **INS** in response to the Enter Number: prompt. 3) Press <CR> twice quickly until the XYPLEX#> prompt displays. 4) Type **C CURATE.JSC.NASA.GOV** at the XYPLEX#> prompt. 5) Type **PMPUBLIC** at the USERNAME: prompt.

For problems or additional information, you may contact: Claire Dardano, Lockheed Martin Space Mission Systems and Services, (281) 483-5329, cdardano@ems.jsc.nasa.gov.

Visit the Curator's home page by opening the URL http://www-curator.jsc.nasa.gov